

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 83815-2803	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/CA2004/001075	International filing date (day/month/year) 23/07/2004	(Earliest) Priority Date (day/month/year) 25/07/2003
Applicant  NATIONAL RESEARCH COUNCIL OF CANADA		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

**4. With regard to the title,**

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

**5. With regard to the abstract,**

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

**6. With regards to the drawings,**

- a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/CA2004/001075

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

An array coil for sensing signals in magnetic resonance experiments incorporates the traditional loop-butterfly array elements at spaced positions along an axis of the sample with additional stacked twisted loops and/or twisted butterfly elements. The twisted loop and twisted butterfly elements are centred along between the standard loop-butterfly array elements. The twisted array elements are naturally isolated from both the loop and butterfly. Alternatively, for a two dimensional mesh array of loop elements, additional twisted loop array elements are added with both longitudinal and transverse orientations, again centered between loop elements. The goal is to allow separation of loop and/or butterfly elements of linear (Spine), 2D planar arrays (Cardiac) or cylindrical arrays of curved array elements (Head), for improved parallel MRI capabilities such as the SENSE or SMASH techniques, but to recover the SNR lost in between the elements and improve the g-factor of the total array with additional orthogonal array elements.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/CA2004/001075

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01R33/34 G01R33/3415

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, EMBASE, BIOSIS, COMPENDEX, WPI Data; PAJ, MEDLINE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No. .
A	OKAMATO K. ET AL: "Torso Array Coil with Eight QD-Surface Coils for Parallel Imaging" PROCEEDINGS OF THE INTERNATIONAL SOCIETY FOR MAGNETIC RESONANCE IN MEDICINE, TENTH MEETING PROCEEDINGS, 18 May 2002 (2002-05-18), XP002306835 HONOLULU, HI, USA the whole document	1-11
A	FUJITA H., SPENCE D.K.: "A Novel 8-Channel "Saddle-Train" Array Coil for Cardiac SENSE Imaging at 1.5 T" PROCEEDINGS OF THE INTERNATIONAL SOCIETY FOR MAGNETIC RESONANCE IN MEDICINE, TENTH MEETING PROCEEDINGS, 18 May 2002 (2002-05-18), XP002306836 HONOLULU, HI, USA the whole document	1-11



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

23 November 2004

Date of mailing of the international search report

07/12/2004

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